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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/732,967	12/10/2003	Nima Mokhlesi	SN DK.333US0	2447

7590 04/13/2005

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EXAMINER
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WILSON, ALLAN R

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 04/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/732,967	<b>Applicant(s)</b> MOKHLESI ET AL.	
	<b>Examiner</b> Allan R. Wilson	<b>Art Unit</b> 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 28-33 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-23 is/are allowed.
- 6) ☒ Claim(s) 1, 24 and 25 is/are rejected.
- 7) ☒ Claim(s) 2-5, 26 and 27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/10/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election of Group I, claims 1-27, in the reply filed on 03/25/2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 USC § 102(b) as being anticipated by Kim et al. ("Kim") U.S. Patent No. 5,278,438.

With regards to claim 1, Kim illustrates in figures 1-13, particularly figures 1 and 6, (entire document) a two-dimensional array of spaced apart stacks 12 of self-aligned elements including a gate dielectric layer 13 on a surface of the substrate, a conductive floating gate 14 on the gate dielectric, an inter-gate dielectric layer 18 on the floating gate and a conductive control gate 16 on the inter-gate dielectric, isolation trenches 30, 42 formed in the substrate between and surrounding the individual stacks, and at least a first set of elongated conductors 90 extending

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across the stacks in contact with control gates thereof and protruding into spaces between the floating gates of adjacent stacks.

Claims 24 and 25 are rejected under 35 USC § 102(b) as being anticipated by Mori, U.S. Patent No. 5,071,782.

With regards to claim 24, Mori illustrates in figures 1-4b, particularly figures 1b and 4b, (entire document) a rectangular array of charge storage elements 20 formed across a surface of the substrate 11, trenches 84 formed into the substrate between at least some of the charge storage elements, elongated control gates 38 extending across charge storage elements and having portions extending down between them, and select transistor gates FG positioned within at least some of the trenches and coupled with the downward extending control gate portions through a layer of tunnel dielectric ILO sandwiched between them.

With regards to claim 25, Mori discloses in at least col. 4, line 55 to col. 5, line 18, the charge storage elements are conductive floating gates.

***Allowable Subject Matter***

Claims 6-23 are allowed.

Claims 2-5, 26 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Bertin and Liu (illustrate floating gates in the trench); Gill, Lee and Tseng (illustrate isolation trenches formed in the substrate between stacks),

Field of Search	Date
U.S. Class and subclass: 257/314, 315	April 11, 2005
Other Documentation: None	N/A
Electronic data base(s): EAST (USPAT, US-PGPUB, JPO, EPO, Derwent, IBM TDB)	April 11, 2005

Any inquiry concerning this communication or earlier communications from an examiner should be directed to Primary Examiner Allan Wilson whose telephone number is (571) 272-1738. Examiner Wilson can normally be reached 7:00-4:00 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Allan R. Wilson  
Primary Examiner  
April 11, 2005